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Claims

1. An adapter for a grinding machine comprising:

a grinding shaft sleeve of a cylindrical shape whose one end is open and having at least one through hole formed at a selected position of an outer circumference;

a grinding shaft rotatably and movably fitted in the grinding shaft sleeve, the grinding shaft including at least one guide groove having a variable surface curvature with respect to a shaft direction and formed at a position corresponding to the through hole, the grinding roller being installed at one end of the grinding shaft and a rotational force generating unit being installed at the other end of the grinding shaft;

a grinding shaft stroke unit whose one end is coupled to the through hole of the grinding shaft sleeve and the other end is fitted in the guide groove, for stroking the grinding shaft with the grinding shaft sleeve;

a sealing means interposed between an outer circumference of the grinding shaft and the grinding shaft sleeve, for preventing leakage of oil; and

a sealing cover coupled to the grinding shaft stroke unit, for sealing the grinding shaft stroke unit.

2. The adapter of claim 1, wherein the grinding shaft stroke unit comprises:

a bearing fixing screw whose one end is screwed to the through hole of the grinding shaft sleeve and the other end has a bearing shaft; and

a bearing inserted into the bearing shaft when the bearing fixing screw is coupled to the grinding shaft sleeve and rotated within the guide groove of the grinding shaft.

3. The adapter of claim 1, wherein said grinding shaft sleeve comprises a first through hole and a second through hole corresponding to the first through hole such that a height

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difference exists between the first through hole and the second through hole.

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4. The adapter of claim 1, wherein said grinding shaft comprises: a first guide groove formed at an outer circumference thereof, corresponding to the first through hole of the grinding shaft sleeve and having a first surface curvature varied with respect to the shaft direction; and a second guide groove spaced apart by a constant interval, corresponding to the second through hole of the grinding shaft sleeve and having a second surface curvature which is the same with that of the first guide groove with respect to the shaft direction.

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5. The adapter of claim 4, wherein the first surface curvature of the first guide groove has an opposite direction to the second curvature of the second guide groove.

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6. The adapter of claim 1 or claim 5, wherein, when a variation in the first surface curvature with respect to the shaft direction is defined as R1 and a variation in the second curvature with respect to the shaft direction is defined as R2, R1 is 70 and R2 is 57.1 when the grinding shaft is placed at a rotation angle of 180 degrees and R1 and R2 are 57.8 when the grinding shaft is placed at a rotation angle of 360 degrees.

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7. The adapter of claim 1, wherein the guide groove comprises at least one cam groove.